

Engaging in a
World of Change




ANNUAL REPORT 2020

WESTERN AREA POWER ADMINISTRATION



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LETTER FROM THE ADMINISTRATOR AND CEO

When I first unveiled this year's theme, Engaging in a World of Change, at our December annual customer meeting, no one could have anticipated how prophetic it would become. In every way, personally and professionally, we have had to adjust, adapt and overcome the new distance in our lives brought about by COVID-19 and learn to engage in new and innovative ways.

This pandemic is the greatest challenge I have faced in eight years as Administrator and perhaps my greatest challenge as a leader in my 30-year career.

In the face of overwhelming uncertainty and confusion, we transitioned in March to a maximum telework stance for nearly 1,900 employees and contractors in a matter of days. That approach continued through the end of the fiscal year. We had to change work practices in the field and dispatch centers and change our processes. The logistical and communications lift this required is hard to adequately quantify and attempting to convey the potential risk of disruption to our work is harder still.

Once again, the people at WAPA shone brightest in adversity, quickly acclimatizing to a new way of working and engaging while juggling the new distractions in their personal lives. It is truly humbling to lead this incredible group of people who exemplify one of our core values: "Serve like your lights depend on it."

Amid these unprecedented challenges, we continued to deliver on WAPA's critical mission, provide premier customer service and meet the annual performance targets and goals we set in October 2019.

Among the many accomplishments you will read in this report, in fiscal year 2020, we:

- Returned \$272.3 million to the Department of the Treasury, totaling nearly \$2.6 billion in the past eight years.
- Executed 98% of our Operations and Maintenance work and 96% of our capital projects.
- Kept our costs at just .012 cents per kilowatt-hour generated.
- Transitioned to new reliability coordinators.
- Selected a common vendor for our supervisory control and data acquisition system.
- Submitted our American Broadband Initiative fiber assessment and initiated a pilot program with select customers.
- Assisted California with their energy crisis, the first in two decades.
- Introduced a workload planning initiative, the culmination of several process improvement efforts at WAPA.
- Were named one of the best places to work in the federal government.

Most importantly, despite our new working conditions, our engagement with customers, stakeholders, neighboring utilities, generating agencies, the Department of Energy and others did not cease. The collaboration looked different, but we were still able to meet virtually on rates, projects, markets efforts, dam operations and every other topic that we would otherwise have discussed in person. Our commitment to engage in open and transparent dialogue transcends barriers, ensuring we can continue frequent and respectful discourse and meet customers' needs in the future.

In December, I spoke about the importance of the dual principles of stability and progress to propel all of us, together, toward a successful and relevant future. This year, our foundation allowed us to remain strong, weathering the uncertainty by relying on our enduring mission and relationships with our customers. At the same time, we absorbed and accepted the changes, bending and flexing around the uncertainties before us thanks to our efforts over the years to invest in and modernize our operations, reward innovation and embrace change in this dynamic energy frontier.

Our journey this year may have been sometimes shrouded in ambiguity, but our goal to keep the lights on for more than 40 million Americans provided a clear and guiding light.

Through the support of our customers, we will continue to navigate these changes and emerge a stronger and more resilient organization.



MISSION

Market and deliver clean, renewable, reliable, cost-based federal hydroelectric power and related services.

VISION

Continue to provide premier power marketing and transmission services to our customers, as well as contribute to enhancing America's energy security and sustaining our nation's economic vitality.

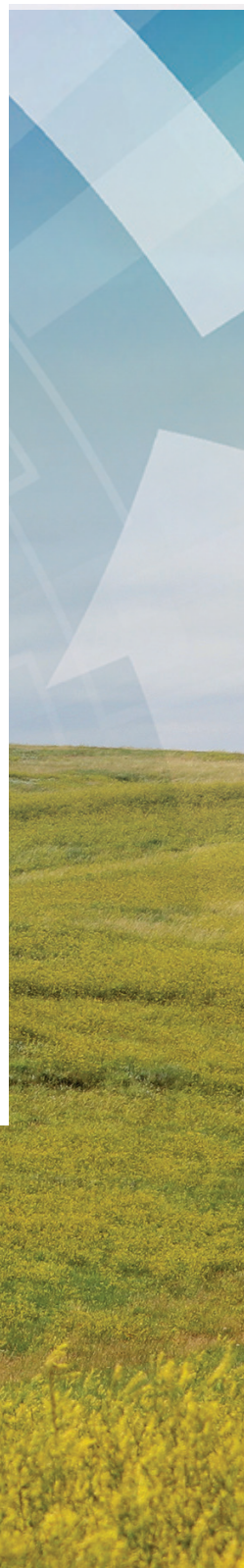
ABOUT WAPA

WAPA is a power marketing administration within the Department of Energy that markets and transmits wholesale electrical power across 15 states through an integrated 17,000-plus circuit-mile, high-voltage transmission system.

Employees work around the clock to sell power and operate and maintain the transmission system that provides energy to:

- Rural electric cooperatives.
- State and federal agencies.
- Investor-owned utilities.
- Municipalities.
- Native American tribes.
- Public utility and irrigation districts.
- Power marketers.
- Joint power authorities.
- Transportation districts.
- Independent system operator corporations.
- Regional transmission organizations.

Our customers then provide electric service to more than 40 million Americans from Texas to the Dakotas, and from the lakes of Minnesota to the California coastline.





OUR CORE VALUES

LISTEN TO UNDERSTAND, SPEAK WITH PURPOSE.

We must always consider our audience and speak to them in ways that will be clear, simple and relevant. We know active listening is the first step in effective communication. We consider context and check for clarity and simplicity. We are respectful, direct, honest, transparent and consistent. We assume positive intent.

SEEK. SHARE. PARTNER.

We value partnership and actively engage others in the seeking and sharing of ideas. We collaborate to move forward and partner to add value. We actively engage others. We share all relevant information in a timely fashion, acting as one team united in our common mission.

RESPECT SELF, OTHERS AND THE ENVIRONMENT.

We represent WAPA in being good neighbors and stewards of our collective resources. We are compassionate in our relationships with others, as well as toward ourselves. We are respectful in all of our dealings.

DO WHAT IS RIGHT. DO WHAT IS SAFE.

We are public servants who act with integrity, stand up for what is right and demonstrate courage when acting in the best interests of our customers and the communities they serve. We are safe in all of our actions and consider safety in all our planning.

BE CURIOUS, LEARN MORE, DO BETTER. REPEAT.

We seek and welcome feedback to directly and quickly improve. We innovate, plan for the future and support the growth of our teams and colleagues. We reflect upon progress to learn and grow.

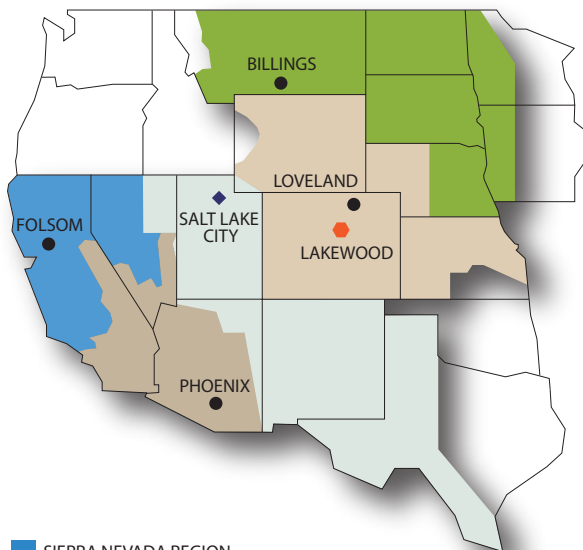
SERVE LIKE YOUR LIGHTS DEPEND ON IT.

We understand the importance of our mission to provide power to customers that serve more than 40 million Americans. We anticipate customer needs, build relationships, seek win-win solutions and embrace responsibility. We work hard to ensure other Americans know and understand the importance of our mission.

SERVICE AND MARKETING AREAS

WAPA delivers power from 11 rate-setting projects that encompass both WAPA's transmission facilities and the power-generating facilities owned and operated by the Bureau of Reclamation, the Army Corps of Engineers and the International Boundary and Water Commission. These projects are made up of 14 multipurpose water resource projects, one coal-fired plant and one transmission project. Power rates are set to recover all costs associated with power delivery, such as annual operating costs, the specific allocated multipurpose costs associated with recovering the federal investment in the generation facilities, with interest, and other costs assigned to power for repayment.

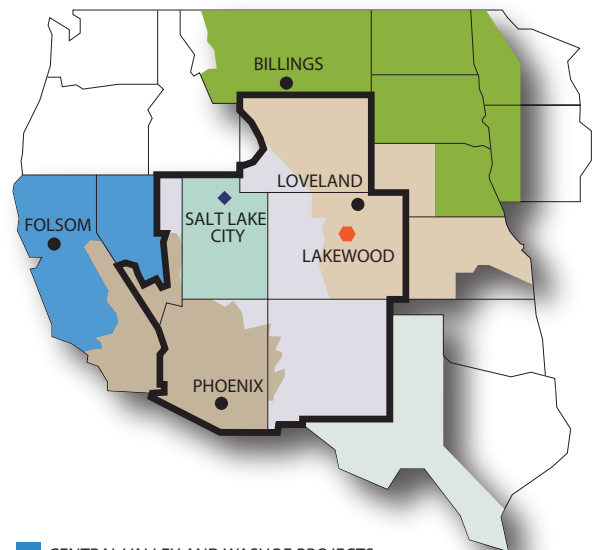
Service Areas



- SIERRA NEVADA REGION
- DESERT SOUTHWEST REGION
- COLORADO RIVER STORAGE PROJECT MANAGEMENT CENTER
- ROCKY MOUNTAIN REGION
- UPPER GREAT PLAINS REGION
- STATE BOUNDARY
- REGIONAL OFFICE
- ◆ HEADQUARTERS
- ◆ COLORADO RIVER STORAGE PROJECT MANAGEMENT CENTER OFFICE

A service area identifies a region's geographic territory while a marketing area defines the boundaries of a hydropower project's customer base.

Marketing Areas



- CENTRAL VALLEY AND WASHOE PROJECTS
- PARKER-DAVIS, BOULDER CANYON AND CENTRAL ARIZONA PROJECTS
- FALCON-AMISTAD PROJECT
- PROVO RIVER PROJECT
- LOVELAND AREA PROJECTS
- PICK-SLOAN MISSOURI BASIN PROGRAM—WESTERN DIVISION AND FRYINGPAN-ARKANSAS PROJECT
- PICK-SLOAN MISSOURI BASIN PROGRAM—EASTERN DIVISION
- SALT LAKE CITY AREA/INTEGRATED PROJECTS
COLORADO RIVER STORAGE, COLLBRAN, RIO GRANDE, SEEDSKADEE AND DOLORES PROJECTS
- STATE BOUNDARY
- REGIONAL OFFICE
- ◆ HEADQUARTERS
- ◆ COLORADO RIVER STORAGE PROJECT MANAGEMENT CENTER OFFICE

OPERATIONAL SUMMARY¹

(UNAUDITED)

(DOLLARS IN THOUSANDS)

	2020	2019	2018
Sales of electric power	\$792,513	\$922,318	\$898,708
Income transfers to generating agencies	(343,721)	(393,795)	(387,911)
Transmission and other operating revenues	547,791	535,602	546,140
Total operating expenses	838,618	814,335	838,087
Operation and maintenance	334,026	297,184	342,107
Purchased power	131,819	155,106	114,856
Purchased transmission services	183,957	173,665	189,840
Net interest expense	13,378	13,172	16,024
Net revenues	144,587	236,618	202,826
Completed utility plant	4,687,182	4,583,397	4,517,058
Payable to U.S. Treasury	817,198	785,768	692,871

¹ This summary represents WAPA's stand-alone operational information for the past three years. WAPA will publish its combined financial statements separately after the independent auditor's opinion is issued.

HYDROPOWER GENERATION

Being in the business of marketing and delivering hydroelectric power, it is impossible to overlook the influence water has on WAPA's operations. Regardless of the amount of water any given year brings and the amount of hydropower generated, WAPA delivers on its mission and fulfills its commitments to customers.

Net generation

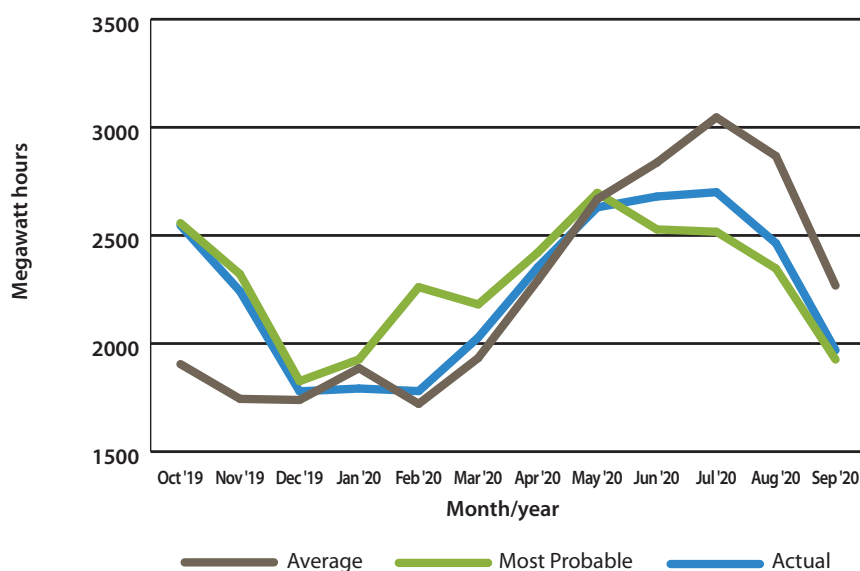
26,985

gigawatt-hours

100.3%

of average

**Water Year 2020
Hydropower Generation
Average vs. Most probable vs. Actual**



A large, dark blue, stylized virus particle with several protruding spikes is positioned on the left side of the header. The background of the header is a solid dark blue with a subtle pattern of white dots.

A NOTE ABOUT COVID-19 AND WAPA'S RESPONSE

It is impossible to reflect on fiscal year 2020 without acknowledging the impact of severe acute respiratory syndrome coronavirus 2, or COVID-19.

The virus first appeared in late 2019. It was difficult to know at that time how it would affect the world in general, if at all. By the end of January, however, the World Health Organization had declared it to be a Public Health Emergency of International Concern. In March, the WHO classified it as a pandemic. This means that for half of the fiscal year covered in this report, WAPA was operating under pandemic conditions.

WAPA stood up its Emergency Operations Center and established a number of key working groups to keep a close eye on COVID-19 developments from the very beginning. The organization had two strong reasons for doing so.

One was to ensure the safety of its employees. WAPA's footprint spans 15 states, and conditions likely would not be the same across all of them. Understanding the specific risks posed by COVID-19 was crucial to keeping employees as safe as possible, no matter where they were located.

The other reason was to ensure the continuation of the organization's mission. More than 40 million Americans rely on the clean, affordable and reliable federal hydropower that WAPA transmits. In trying times, that reliability becomes more important than ever. WAPA had to ensure that, no matter how the pandemic unfolded, the lights would stay on.

Shortly after COVID-19 was classified as a pandemic, WAPA moved to a maximum telework posture. This was something that had previously been discussed, and now it was time for action. All employees who could effectively perform their job duties from home were required to do so.

This meant an increased burden on Information Technology and Cyber Security. IT saw its requests for support increase massively overnight, as the team now had to assist nearly every WAPA employee in some way with their new work arrangements. What's more, WAPA's cybersecurity perimeters became employees' living rooms. Fortunately, due to the purchase and implementation of Microsoft 365's advanced security offerings, WAPA was able to pivot rapidly to an endpoint-focused security model, mitigating much of the risk.

In many cases, telework was not possible and mission-critical employees would continue to report to their duty stations and perform work in the field. These employees were required to respect social-distancing guidelines and to wear facemasks whenever social distancing was not possible.

This itself led to additional concerns. If the pandemic increased enough in severity, and mission-critical employees such as dispatchers could not work from home, would it be necessary to sequester them on site?

By the end of March, regional sequestration plans were being developed. In April, sequestration exercises were run with volunteer employees over weeklong periods to identify any issues or shortcomings in their sequestration planning.

Actual sequestration has not proved to be necessary, but these exercises were evidence that WAPA was planning ahead and doing its best to prepare for all eventualities.

Communication and transparency were two other areas in which WAPA was determined to succeed. The pandemic rendered in-person All-Employee Meetings impossible. Public Affairs and Information Technology teamed up to reimagine them as virtual events, which could keep employees across WAPA's 15-state footprint informed of updates and developments.

The first WAPA-wide meeting of its kind was held in early May, and it was followed not only by additional AEMs, but by periodic town hall meetings, allowing employees to voice their questions and have them answered. Every employee's feedback is valuable, and this was an important way for the organization to keep the lines of communication open in both directions.



Even WAPA's one-of-a-kind Electric Power Training Center found ways to evolve its processes. In-person trainings were no longer an option and the EPTC transitioned – successfully and without precedent – to a virtual learning environment, allowing students throughout the industry to continue their training and education.

All of this barely scratches the surface of WAPA's response to COVID-19. It is meant only to serve as a brief overview of something that has impacted every aspect of the organization and the specific ways in which WAPA fulfills its mission.

In this report, you will read about many of the things the organization has accomplished during circumstances unprecedented in its 40-plus year history. Know that whether or not a particular entry mentions COVID-19, its shadow hangs over everything. Know also that in spite of what has been in many ways the largest challenge WAPA has ever faced, the lights have not only stayed on, but the organization has continued to innovate and improve.

It was WAPA's responsibility to demonstrate stability. It is WAPA's honor to have also demonstrated progress.



Stability

Stability and progress may not quite be two sides of the same coin, but both are necessary and rely upon each other when it comes to an organization's success.

In the case of stability, we find a sense of security. We find reliability, which is by no accident a key word in our organization's very mission. We find dependability, which is particularly valuable and important in otherwise uncertain times.

When one of the more than 40 million Americans served by our customers flips the switch in their home, their workplace or their business, they know the lights will turn on. Whatever else may be in flux, they know they can count on that. They know because of WAPA's stability.

The value of stability is the knowledge that things are working as expected. It is the knowledge that the core functions of the organization are so reliable that they can be built upon securely. It is having a known in a world of unknowns.

That is value that cannot be measured in dollars.

Summit inspires WAPA leaders

In early February, leaders from across WAPA gathered in Denver, Colorado, for the 2020 Leadership Summit, the organization's flagship leadership development event. The summit provides formalized training and networking events arranged around a core All-Leadership Meeting.

This year's All-Leadership Meeting featured a welcome message from Colorado Governor Jared Polis, keynotes from Administrator and CEO Mark A. Gabriel and Chairman of Morgan Stanley's Institutional Securities Group Jeffrey Holzschuh, as well as industry and customer panels.

This year's summit theme—Leadership in an Evolving Industry—captured the need for all WAPA leaders to stay motivated, agile and engaged, which proved particularly relevant in responding to COVID-19 just a few weeks later.

The overarching goals of the summit were to facilitate collaboration, increase communication across regions and Headquarters and align WAPA's leadership to better serve the organization's mission.



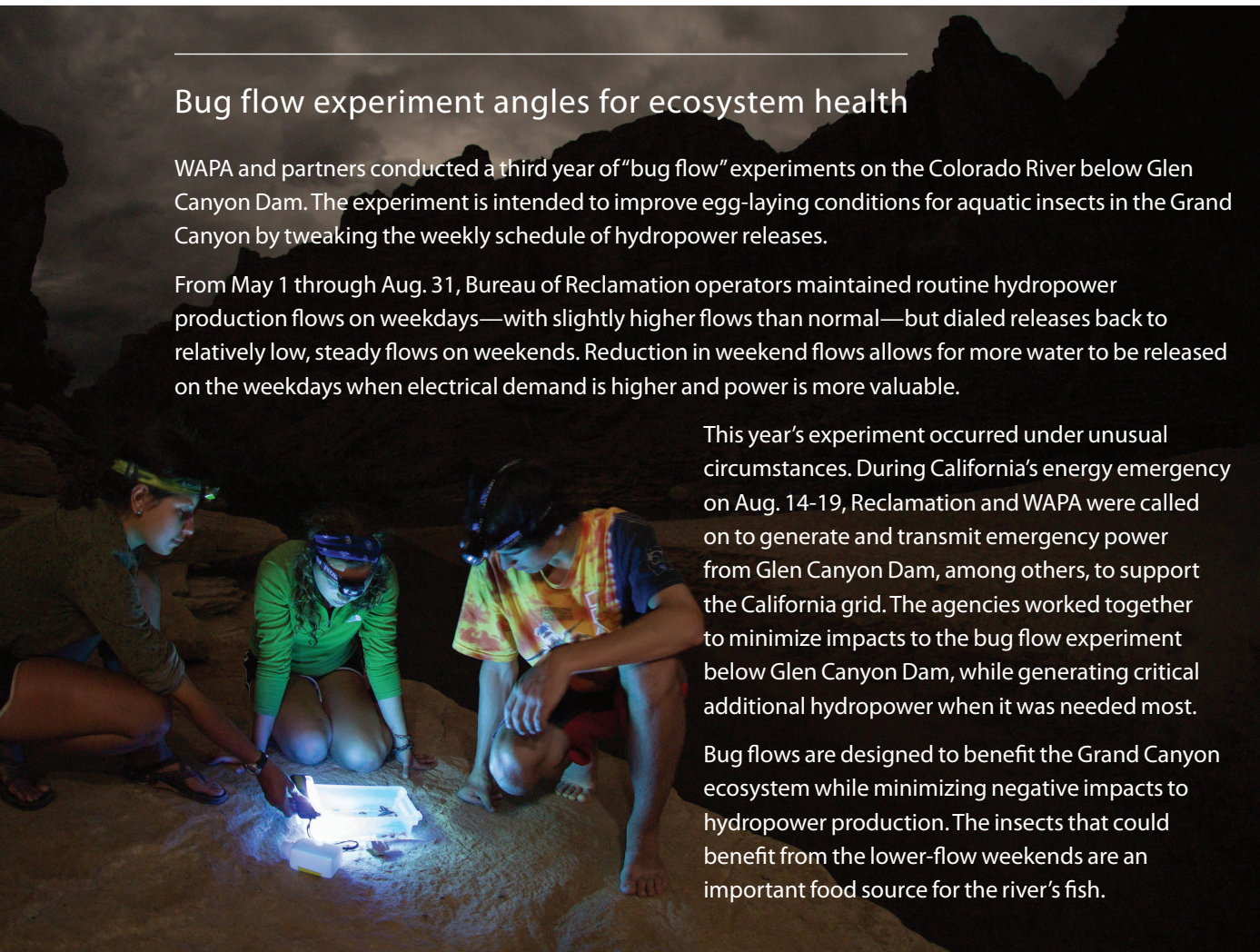
Bug flow experiment angles for ecosystem health

WAPA and partners conducted a third year of "bug flow" experiments on the Colorado River below Glen Canyon Dam. The experiment is intended to improve egg-laying conditions for aquatic insects in the Grand Canyon by tweaking the weekly schedule of hydropower releases.

From May 1 through Aug. 31, Bureau of Reclamation operators maintained routine hydropower production flows on weekdays—with slightly higher flows than normal—but dialed releases back to relatively low, steady flows on weekends. Reduction in weekend flows allows for more water to be released on the weekdays when electrical demand is higher and power is more valuable.

This year's experiment occurred under unusual circumstances. During California's energy emergency on Aug. 14-19, Reclamation and WAPA were called on to generate and transmit emergency power from Glen Canyon Dam, among others, to support the California grid. The agencies worked together to minimize impacts to the bug flow experiment below Glen Canyon Dam, while generating critical additional hydropower when it was needed most.

Bug flows are designed to benefit the Grand Canyon ecosystem while minimizing negative impacts to hydropower production. The insects that could benefit from the lower-flow weekends are an important food source for the river's fish.





WAPA employees recognized by RMEL

In June, RMEL – formerly the Rocky Mountain Electrical League – recognized two WAPA employees with prestigious awards.

Electrical Engineer Jackie Brusoe received its Emerging Leader Award. The award honors RMEL members with five to 10 years of industry experience who are making an impact through significant contributions within their organization and the industry.

Supervisory Power System Dispatcher Christine Henry received the Industry Leadership Award, which is presented to individuals who have demonstrated singular dedication, service and leadership to the electric utility industry.

WAPA's returns to Treasury near \$2.6 billion

In fiscal year 2020, WAPA returned around \$272.3 million to the Department of the Treasury. This makes for a total of nearly \$2.6 billion returned to the Treasury in the past eight years.

WAPA returns millions of dollars annually to the Treasury to help repay the original investment and interest for 57 hydroelectric dams and over 17,000 miles of high-voltage transmission infrastructure, among other needs.

WAPA also continued work on its reserve balance strategies, which have been developed with input from customers to ensure WAPA can continue to effectively and efficiently meet its core mission requirements in the face of emergencies, adverse conditions or lapses in federal funding or appropriations.

This has led to WAPA increasing reserves for purchase power and wheeling by almost \$80 million over the year to reach an appropriate level to manage costs and risks during such conditions.

Line rebuild succeeds despite delay

The Circle-to-Dawson County 115-kilovolt transmission line rebuild saw significant work completed this fiscal year. The project consists of upgrading 45 miles of transmission line that was originally constructed in 1945, replacing wood structures and adding overhead ground wire.

WAPA is completing the project in roughly 10-mile increments, the third of which was scheduled to start in May but was postponed due to the COVID-19 pandemic. Work resumed Aug. 25. During this phase, crews from Upper Great Plains and Rocky Mountain replaced 81 wood structures.

Ground wire will be strung in early spring 2021, and the conductor will be updated and pulled to complete the project.



Crews come together for structure repair

In fiscal year 2020, a large-scale repair initiative continued on steel-lattice structures along the 230-kilovolt transmission line between the North Fork and Rifle substations in Colorado.

Several tower foundations were found to have been damaged from soil movement and other drainage problems, which caused the foundations to slide and the structures to twist.

To address the most immediate and severe problems and to improve drainage around the structures, crews implemented timely and cost-effective measures, digging up the foundations one at a time and moving them into their correct locations before backfilling and sloping the soil away from the foundations.

Crews from multiple locations as well as foremen, maintenance managers and civil engineers from both Rocky Mountain and Headquarters came together to work on the restoration project.

With this repair work,
WAPA's maintenance crews avoided
\$2.25 million
in costs, or about
\$500,000
per structure.



EPTC gives students hands-on experience

On Feb. 21, a group of about 20 ninth-grade students from John F. Kennedy High School in Denver, Colorado, visited WAPA's Electric Power Training Center in Golden, Colorado, for a day filled with discussions, demonstrations and hands-on activities.

EPTC Manager Kyle Conroy discussed the history of the power marketing administrations, the debut of hydroelectric power in the West, the purpose of the Department of Energy and WAPA's role in transmitting clean, affordable and reliable hydropower to more than 40 million Americans.

The students also simulated and responded to problems using the EPTC's Miniature Power System, which uses actual power on a small scale to simulate the management and intricacies of the real-life power grid.

Events such as this one are vital to encourage student interest and provide them with knowledge and insight in industry opportunities.

RM Operations avoids costs, errors

Rocky Mountain's entrance into the Northwest Power Pool in 2019 continues to benefit WAPA's Western Area Colorado-Missouri Balancing Authority customers by avoiding nearly \$500,000 a month in contingency reserves.

This fiscal year, RM Power Operations, Contracts and Rates employees worked to develop the first partial self-supply agreement for required regulation service within the WACM BA. This first-of-its-kind agreement provides WACM with regulating capacity to ensure the reliable operation of the BA, while also providing benefit to its customers in the form of credits on the ancillary services bill.

In fiscal year 2020, RM Power Operations performed a total of 1,760 switching programs. Only 0.68% resulted in a review, and 0.23% were determined to be switching errors. Staff implemented corrective actions after each incident and wrote and distributed lessons-learned assessments diagnosing their causes.

Average reduced need for
contingency reserves

~46

megawatts

of capacity per hour per day

Loveland, Colorado	Phoenix, Arizona	RM Operations
1,086	674	1,760
Total switching programs	Total switching programs	Total switching programs
9	3	12
Total incidents	Total incidents	Total incidents
0.83%	0.45%	0.68%
Error rate	Error rate	Error rate

DSW regional manager named among top women in energy

Senior Vice President and Desert Southwest Regional Manager Tracey LeBeau was named as one of the *Denver Business Journal's* Top Women in Energy for 2020 in April. The magazine selected and spotlighted 44 influential women in the energy industry.

LeBeau began her career at WAPA in 2014 as the Transmission Infrastructure Program manager. In April 2018, she stood up and managed the Office of the Chief Administrative Officer. In May 2020, she formally assumed her current role.

LeBeau's leadership background also includes important cultural repatriation work. As an accomplished academic writer, LeBeau taught a course this year covering sustainable energy, economic development and indigenous policy to graduates and undergraduates at Stanford University, her alma mater.



UGP linemen brave the elements during repair

Strong winds on the morning of June 9 damaged the Mt. Vernon-to-Armour 115-kilovolt transmission line in South Dakota, blowing over 50 wood H-frame structures.

This was especially challenging timing as a majority of WAPA's South Dakota linemen had traveled to Montana the previous day to start work on a major transmission line project. The wind damage was so significant that the crews were called back to support the rebuild.

The initial rebuild was hampered by three inches of rain. By mid-project, crews had dealt with tropical storm winds of more than 40 miles per hour for three straight days, but they continued removing and setting structures as they could, safely.

On June 20, the line section was returned to service. The crews rebuilt and restored all 50 structures in 10 working days.

IDC holds biannual training

In March, WAPA's Inclusion and Diversity Committee held its Going All-In on Inclusion and Diversity training and its biannual face-to-face meeting.

Spanning two and half days, the IDC's activities included training new committee members on the overall purpose behind inclusion and diversity, or I&D, efforts, discussing the current state of I&D across the organization and mapping out future tasks.

The training provided a crash course in how WAPA approaches I&D and provided concrete examples of ways in which organizations with strong I&D practices perform more effectively.

The training also underscored inclusion as the "game changer" in its ability to attract and retain top talent. By embedding inclusion in the way the organization does business, WAPA fosters an environment that maximizes the contributions of all employees.



Mead rebuild successful

In April, crews in Desert Southwest began a large 230/500-kilovolt transformer rebuild project at Mead Substation near Henderson, Nevada.

About 10 craft employees used cranes and bucket trucks to complete the replacement, which involved multiple components that had to be transported and reassembled in sometimes close quarters. Some components were made of fragile ceramic, and a single chip in the coating would render the piece unusable. Other components weighed around 2.5 tons.

The project took one month to complete, helping ensure continued reliable electric delivery for the southwestern U.S.



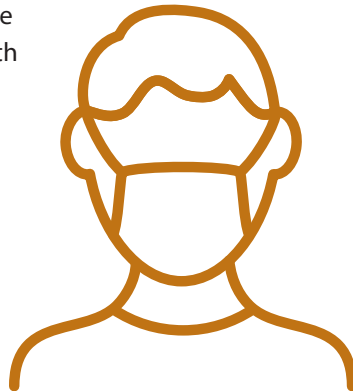
Safety first, especially during pandemic

Safety and Occupational Health played an integral part during the COVID-19 pandemic by providing industrial hygiene and workplace safety consultation and advice to employees across WAPA's 15-state footprint.

The team also developed a series of guidance documents based on Centers for Disease Control and Prevention recommendations. SOH updated and released the *Power System Safety Manual* and the Fall Protection chapter of the *Power System Maintenance Manual*. WAPA Order 440.1 – Occupational Safety and Health Program was also revised and updated for release in early 2021.

This fiscal year, 999 WAPA employees participated in the Safety Incentive Program by engaging in specialized and general workplace safety activities.

Despite the pandemic, across all regions, SOH is continuing to plan and complete annual facility inspections of all staffed WAPA facilities. The team also continued with injury-prevention safety education by preparing and distributing Learning Summaries and Near-Miss Reports WAPA-wide, while publishing monthly health and safety articles in the *Closed Circuit*.



WAPA, LYREA partner to relocate power equipment

In May, Upper Great Plains staff worked with Lower Yellowstone Rural Electric Association to relocate the cooperative's equipment from WAPA's Richland Substation in Montana to a new nearby substation owned and operated by LYREA.

The project had been in the works since LYREA completed construction and commissioning of its new Helmut Substation in 2018, which replaced electric service that WAPA used to provide for LYREA through the Richland Substation.

The project required the residents in nearby Sidney, Montana, to go without power during the work. UGP electricians and linemen worked together to limit the outage to only a few hours while also working in a COVID-19 hotspot.

999

Safety Incentive Program
participants

14

Articles addressing safety topics

17

Near-Miss Reports

20

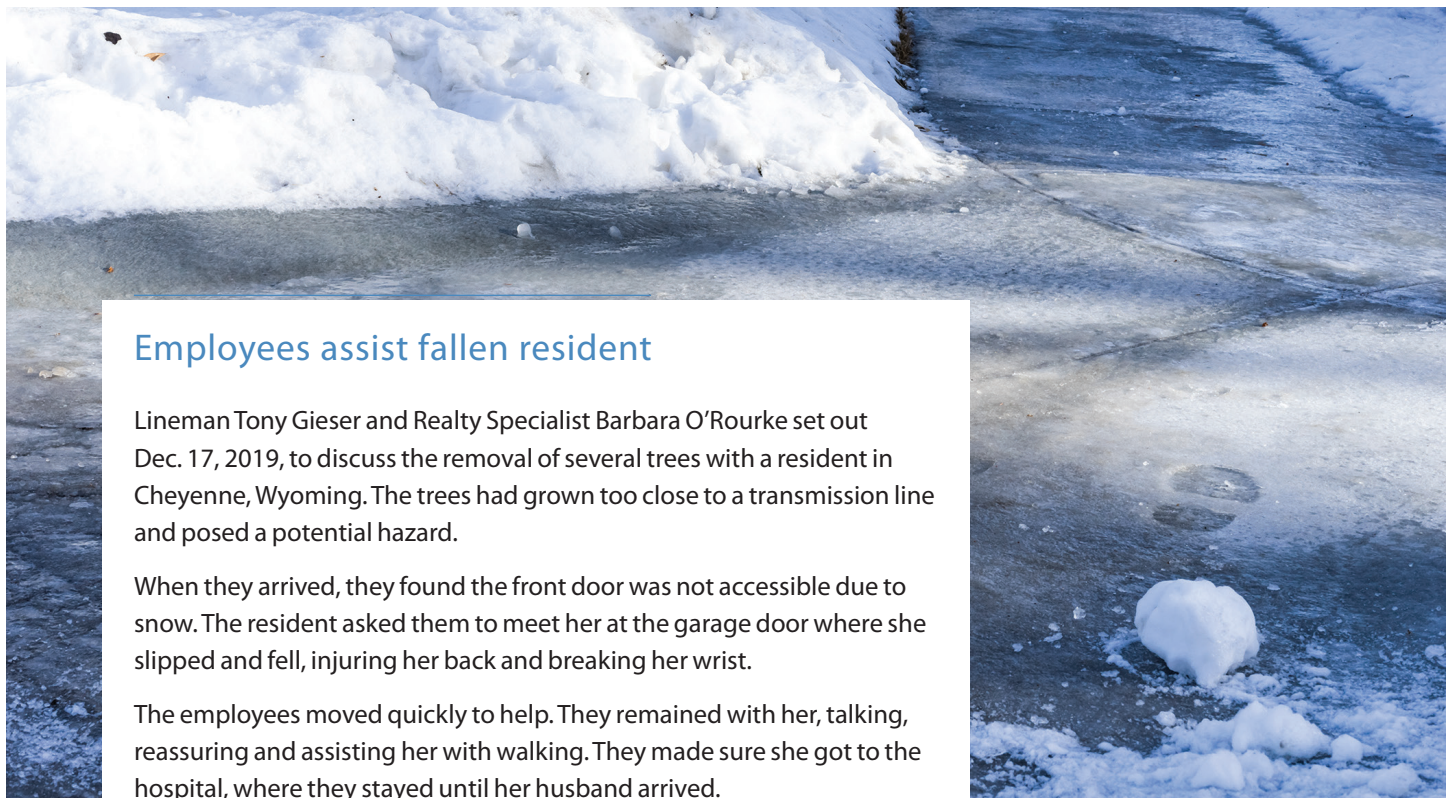
Learning Summaries

0.6

Recordable Incident Rate

2.1

Average Recordable Incident
Rate for Electric Power
Transmission, Control and
Distribution as reported by the
Bureau of Labor Statistics



Employees assist fallen resident

Lineman Tony Gieser and Realty Specialist Barbara O'Rourke set out Dec. 17, 2019, to discuss the removal of several trees with a resident in Cheyenne, Wyoming. The trees had grown too close to a transmission line and posed a potential hazard.

When they arrived, they found the front door was not accessible due to snow. The resident asked them to meet her at the garage door where she slipped and fell, injuring her back and breaking her wrist.

The employees moved quickly to help. They remained with her, talking, reassuring and assisting her with walking. They made sure she got to the hospital, where they stayed until her husband arrived.



“

The new substation, which began serving load in December 2019, consists of a 115-kV ring bus, 69-kV main and transfer bus, 69-kV transformer, new control building and microwave path.

”

New SD substation supports reliability

In late 2019, Upper Great Plains commissioned a new substation in Roberts County, South Dakota, to increase the reliability of the underlying East River Electric Power Cooperative's 69-kilovolt system in the Summit area.

This was accomplished by interconnecting WAPA's Roberts County Substation with two new 69-kV transmission lines owned and operated by East River. The new substation, which began serving load in December 2019, consists of a 115-kV ring bus, 69-kV main and transfer bus, 69-kV transformer, new control building and microwave path.

The substation was built to serve East River's growing customer load and increase the cooperative's system reliability.

Transmission planning helps make projects reality

The Rocky Mountain Transmission Business Unit is responsible for processing generation interconnection requests to the RM and Desert Southwest transmission systems.

These requests are submitted by developers wishing to connect their prospective generation projects, such as wind and solar, into the regional grid. Interconnection requests are required to be evaluated on a first-come, first-served basis.

DSW completed the interconnection for the 32.5 MW AZ Solar 1 photovoltaic solar facility in late 2019.

Facility ratings study supports compliance, grid safety

In fiscal year 2020, Rocky Mountain completed a multiyear effort to validate its transmission system equipment facility ratings as required by North American Electric Reliability Corporation Standard FAC-008.

The standard requires utilities to confirm, using technically sound principles, that facility ratings used in planning and operating the bulk electric system fall into the system operating limit of the most limiting applicable equipment rating within a facility or piece of equipment.

A joint Desert Southwest and RM committee researched, reviewed and documented all 461 line and transformer facility ratings for the regions. During rating verification, several were found to be incorrect and Corrective Action Plans were developed to address the discrepancies. These corrective actions will be implemented over the next few years.

In fiscal year 2020, the TBU has studied and constructed interconnections for:

DSW

425

Megawatts of wind

180

Megawatts of solar with battery storage

RM

1,620

Megawatts of wind

925

Megawatts of solar, 160 megawatts of which include battery storage





Design and Engineering assists with storm repairs

When the lights go out, craft employees brave inclement weather and difficult working conditions, day or night, to restore power as quickly as possible. Most of their fixes are temporary, however.

Repairing broken and damaged equipment requires permanent solutions that originate in WAPA's Design and Engineering department. Here are a few examples of the exemplary work completed by WAPA's engineers this fiscal year:

- On Oct. 21, 2019, a small landslide along the 115-kilovolt Fort Randall-to-Gregory transmission line in South Dakota caused a structure to move about 10 feet from its original position, straining the structure and conductor. Engineering modeled moving the structure 170 feet ahead on line on more solid ground.
- A February winter storm in North and South Dakota damaged three structures on the 230-kV Bismarck-to-Glenham transmission line. Engineering designed replacement steel poles that were delivered in 10 weeks instead of the typical 22-week lead time.
- On March 15, freezing rain badly damaged structures on the 115-kV Archer-to-Stegall steel pole transmission line in Wyoming. Engineering designed a wood pole shoo-fly around the damaged steel monopole structures. Permanent steel pole replacement structures have been designed and anti-galloping devices are being considered to prevent future failures.
- On June 6, a summer storm toppled a lattice structure on the 230-kV Oahe-to-New Underwood transmission line in South Dakota. Engineering provided lattice structure information to the demolition crew and a new design to place two temporary 80-foot wood H-frame structures to help restore power as quickly as possible. The permanent structure was delivered in late September.

President's office recognizes employees

In May, the Executive Office of the President recognized four WAPA employees with Gears of Government Awards. The awards recognize exceptional individuals and teams across the federal workforce whose performance and dedication deliver key outcomes for the American people, including mission results, customer service and accountable stewardship.

An individual award went to Management and Program Analyst Lynette Wright for leading 15 Department of Energy process improvement project teams, resulting in more than \$1 million in cost savings.

A team award went to three members of WAPA's Vegetation Management team as well as two Forest Service employees for developing plans to safely clear vegetation around WAPA transmission lines to reduce risk of fire. The WAPA employees recognized were Chief of Staff Melissa Ardis, Vegetation Management Specialist Neilie Goodwin and Electronic Integrated Systems Mechanic Brian Little.



WAPA helps Reclamation finalize CVP Study

On Jan. 14, the Bureau of Reclamation finalized the Central Valley Project Final Cost Allocation Study. The process started in 2010, involving substantial collaboration with stakeholder groups and several federal agencies, including WAPA.

WAPA was actively involved in the process, participating on technical and leadership teams to ensure the power project's purpose was appropriately characterized and evaluated in the study. Ultimately, the final study results revealed a reduced capital cost allocation to the power project purpose of about \$32 million.

WAPA, in coordination with Reclamation staff, worked to ensure that the capital recovery portion of the power customers' fiscal year 2020 Power Revenue Requirement could be reduced by \$10 million.

This reduction was implemented in April as a midyear adjustment, reducing the PRR estimate from \$79.5 million to \$68.8 million.



Employees intervene in active shooter situation

On May 20, two WAPA employees, High Voltage Electricians Randy Hammit and Marvin Moone, found themselves involved in an active shooter situation. They took action to save lives.

The two met for dinner at the Westgate Entertainment District in Glendale, Arizona. They thought they heard fireworks, but it was instead an assault rifle. The two scrambled for cover when they saw a victim in the middle of the street.

No sooner had they approached the first victim than they heard a second victim calling for help. Even as gunshots ricocheted, the two proceeded to assist them.

Hammit's wife Kelli, a registered nurse, joined them on the scene and quickly got to work helping the victims.

The three worked together to stabilize the victims for about 20 minutes until paramedics arrived.



WAPA supports California through energy emergency

Between Aug. 14-19, WAPA and the Bureau of Reclamation joined forces to generate and transmit roughly 5,400 megawatt-hours of hydropower in response to California's energy emergency. Sierra Nevada's Central Valley Project provided more than 3,300 MWh, while the Colorado River Storage Project provided nearly 1,900 MWh and Desert Southwest provided more than 200 MWh.

The two federal agencies are responsible for generating, marketing and transmitting hydropower from federally owned hydroelectric dams to local utilities and markets. In an emergency situation, the hydropower can be called upon to generate power and stabilize the grid.

Reclamation generated the power using its fleet of federal hydroelectric dams in the West, including, among others, 18 dams in the Central Valley Project in northern California; Glen Canyon Dam in Page, Arizona; Hoover Dam on the border of Arizona and Nevada; Morrow Point Dam in western Colorado; Davis Dam in Arizona; and Parker Dam in California.

WAPA then transmitted the energy via its high-voltage transmission system into the California Independent System Operator's service territory, while continuing to reliably serve WAPA's customer loads.

Hydroelectric dams are crucial sources of reserve energy in case of system emergencies. The large reservoirs, such as Lake Mead and Lake Powell, function as enormous batteries and can quickly dispatch a large amount of electricity on the grid. WAPA and Reclamation have plans in place with a number of utilities to provide emergency power from federal hydroelectric powerplants.

WAPA named one of the best places to work in federal government

In December 2019, WAPA ranked in the top quartile of best places to work in the federal government. The rankings are based on results from the Federal Employee Viewpoint Survey, an annual survey of government employees. WAPA uses the survey to inform decisions about organizational culture and meeting employee needs.

Several key improvements have originated from survey findings, such as refreshing the organization's core values, increasing flexibility in employee work schedules, increasing transparency and access to the highest levels of leadership, forming an extended leadership team to improve alignment and communication up and down the organization, increasing senior manager visits to field sites and increasing the use of collaborative, cross-regional, cross-functional project teams.

WAPA's scores in the governmentwide survey have increased for the past five years.

Aviation soars in 2020

WAPA's aviators conducted helicopter patrols, emergency callouts, aircraft maintenance and pilot training throughout fiscal year 2020.

Aviation staff and flight crews developed cockpit flight procedures and thorough preflight sanitizing in compliance with Federal Aviation Administration and Centers for Disease Control and Prevention recommendations to reduce the risk of exposure to COVID-19 and mitigate the challenge of social distancing in the confined space of the aircraft.

Aviation also continued to define the utilization and expansion of Unmanned Aerial Systems in all of WAPA's regions. These are used in the field to evaluate power transformers, insulators and structures while they remain energized.

The program provides personnel and equipment services for various programs and departments throughout WAPA. Its primary mission is transmission line patrol. Aviation also provides external load operations for repairs, such as moving equipment and personnel to locations where terrain or other issues restrict access.

Aviation

1,554.1

Hours flown

50,970

Patrol miles flown

Human External Cargo

5

Jobs completed

50

Linemen trained, kept
current

~90

Miles of line maintained

223.3

Flight hours worked





Progress

Progress means more than looking forward. Progress means taking action, and doing so intelligently, effectively and confidently.

Without stability, “progress” is only a nice thought. With stability, progress becomes reality; improvements and enhancements are made, evolving what is good into something that is better.

Progress is crucial not only for an organization’s continued existence, but to increase the quality of service that it provides to its customers. With a mind toward progress, good enough is not good enough.

Throughout fiscal year 2020, WAPA demonstrated that progress was much more than a concept; it was a guiding principle. Complacency was never an option, a fact that was proven definitively with the onset of the COVID-19 pandemic.

The progress WAPA made in the face of adversity is evidence of the organization’s commitment to being an active partner, to preparing for the future we all face together and to ensuring it is ready to meet both the obstacles and the opportunities that lie ahead.

By its very definition, progress is at the heart of engaging in a world of change.

RM, CRSP, UGP move toward WEIS

WAPA's preparations to join Southwest Power Pool's Western Energy Imbalance Service market continued throughout fiscal year 2020. WAPA successfully registered Colorado River Storage Project, Rocky Mountain and Upper Great Plains assets for WEIS, helped finalize market protocols and began market trials in August.

The Western Area Colorado-Missouri Balancing Authority, working in collaboration with its customers, developed a BA services agreement and a set of business practices to define the policy and technical requirements for new BA operations and procedures within WEIS. Rates and transmission tariff updates are also underway to support the transition.

When implemented Feb. 1, 2021, WEIS will be a voluntary energy imbalance market designed to reliably and cost-effectively manage real-time differences between scheduled and actual electricity supply and demand.

~90
BA customer meetings

2
All-employee webinars

9
Monthly markets newsletters



WAPA selects vendor for SCADA uniformity

In June, WAPA selected a new vendor to provide supervisory control and data acquisition and energy management system software to all of WAPA's regions.

This selection came after a year and half of evaluation and procurement negotiations to provide a commercial, off-the-shelf platform to implement WAPA-wide.

Previously, WAPA had three separate SCADA systems with different hardware, software and maintenance agreements. The common platform will improve operational flexibility, increase reliability, enhance cybersecurity and avoid future administrative costs related to maintaining multiple SCADA vendors and contracts.

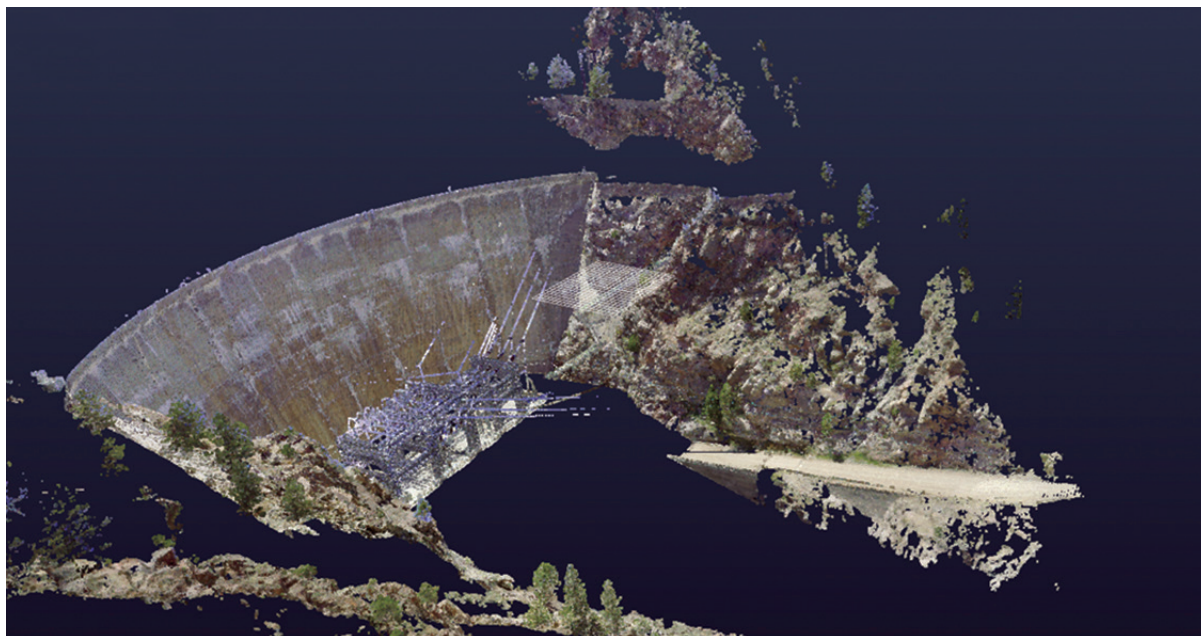
Kicking off a five-year implementation phase, WAPA's next step is to produce common configuration standards and processes to deploy the system in all of its control centers, beginning with Sierra Nevada in late 2020.

New 3D lidar scanner allows surveys from safe distance

In July, WAPA procured a 3D lidar scanner, allowing engineers to obtain high-definition images and survey data of any WAPA facility from a safe distance. Lidar works on the same principle as radar but uses light instead of radio waves.

The system measures the distance of an object's surface and then maps thousands of points in a three-dimensional coordinate system that can be modeled into simplified computer-aided-design objects.

Owning this equipment will allow WAPA to scan around 20 sites per year more efficiently and at a reduced cost. Engineers will use these scans to view and tour 3D models of these sites remotely, reference actual elevations and measurements of equipment, assist with training and determine accurate facility ratings for compliance purposes.



SN prepares for EIM integration, DSW evaluates options

Sierra Nevada continues preparations to join the California Independent System Operator Western Energy Imbalance Market. SN is in the process of executing testing scenarios with CAISO and completing staff training.

In anticipation of its go-live date of March 25, 2021, SN is developing training plans and testing system configurations and scenarios with CAISO. This will continue until parallel operations begin Feb. 1, 2021.

Desert Southwest is evaluating both the EIM and Southwest Power Pool's Western Energy Imbalance Service market while continuing market-related conversations with customers.

This year, WAPA commissioned third-party contractors to carry out a benefits study and gap analysis to better inform the decision. The benefits study includes a production cost analysis of the entire Western Interconnection in five-minute increments over a representative year. The gap analysis will identify changes needed to prepare existing business systems, processes, infrastructure and software for market participation, as well as assess the costs of market participation.

“Desert Southwest is evaluating both the EIM and Southwest Power Pool's Western Energy Imbalance Service market while continuing market-related conversations with customers.”



New substation boosts reliability

In 2019, NorthWestern Energy notified WAPA that they intended to build a new substation at Lake Helena, Montana, at the intersection of four power lines: two 100-kilovolt WAPA lines that receive power from the Bureau of Reclamation's Canyon Ferry Powerplant and two NWE lines traveling from the Great Falls to East Helena substations. Changing the configuration from three-terminal to radial lines to Canyon Ferry would avoid tripping off the entire 63-mile line if a fault condition were present.

By mid-October 2019, WAPA line crews had terminated each of the two Canyon Ferry lines into the new substation. Protection and Communication staff commissioned relays in the new configuration, removed much of the old equipment and procured new communication pathways.

By Oct. 23, 2019, both lines were energized and power was flowing. The end result is a much more reliable power system, better line protection and more secure and reliable telecommunications for Canyon Ferry.

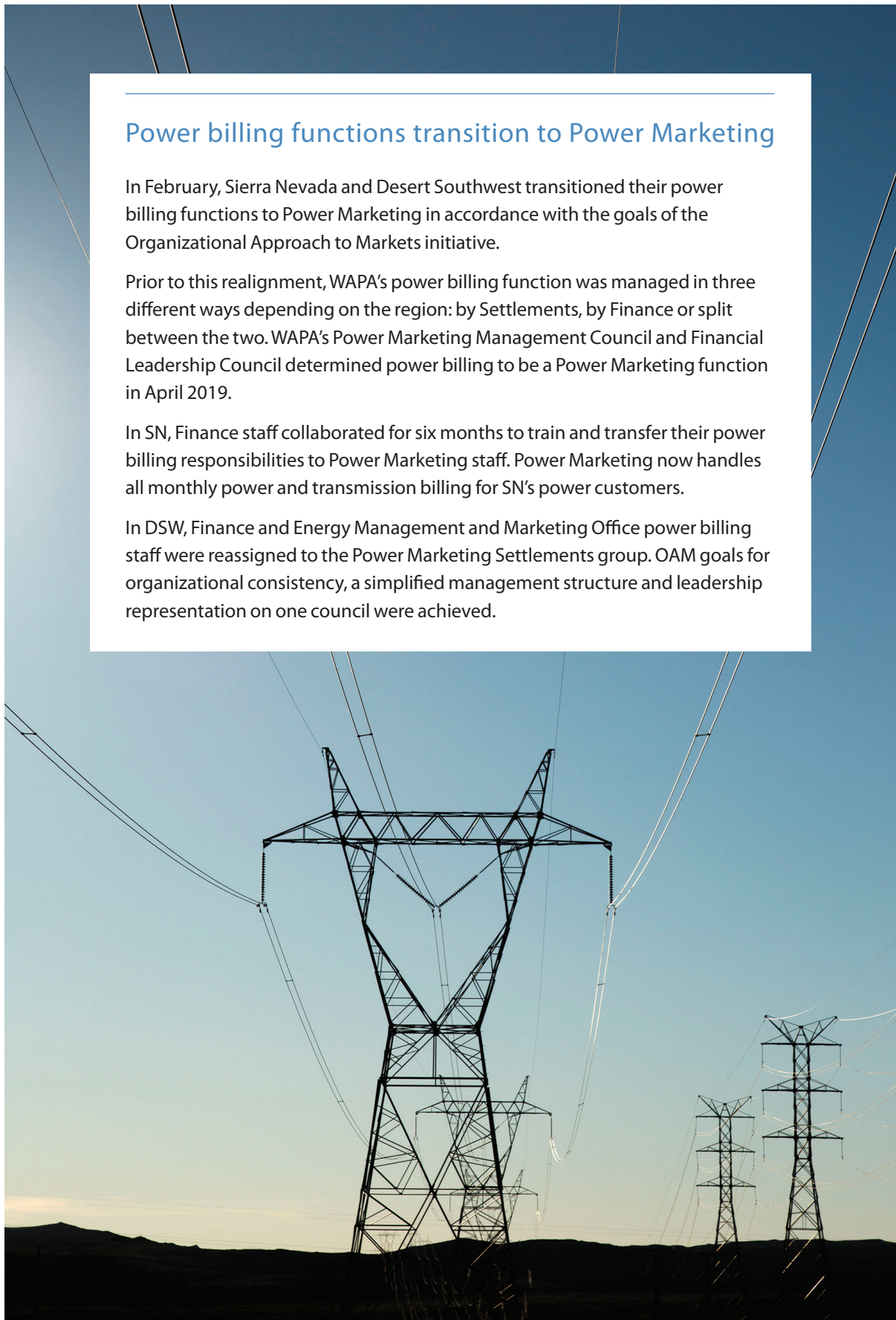
Power billing functions transition to Power Marketing

In February, Sierra Nevada and Desert Southwest transitioned their power billing functions to Power Marketing in accordance with the goals of the Organizational Approach to Markets initiative.

Prior to this realignment, WAPA's power billing function was managed in three different ways depending on the region: by Settlements, by Finance or split between the two. WAPA's Power Marketing Management Council and Financial Leadership Council determined power billing to be a Power Marketing function in April 2019.

In SN, Finance staff collaborated for six months to train and transfer their power billing responsibilities to Power Marketing staff. Power Marketing now handles all monthly power and transmission billing for SN's power customers.

In DSW, Finance and Energy Management and Marketing Office power billing staff were reassigned to the Power Marketing Settlements group. OAM goals for organizational consistency, a simplified management structure and leadership representation on one council were achieved.



EPTC upgrades training switchboard

In July, WAPA's Electric Power Training Center in Lakewood, Colorado, upgraded its Miniature Power System with a modern, digital control design.

The original EPTC digital control system was commissioned in 2000 and featured cutting-edge technology to support the training of students in power system operations. However, after nearly 20 years of service, the design no longer represented WAPA's latest digital control practices, and was due for an upgrade.

The new platform increases operational functionality, reflects WAPA's current Digital Control System standard, and provides a platform to launch future technologies for use in WAPA's transmission system. It is also capable of evaluating cybersecurity impacts on the grid.

This EPTC is WAPA's premier training facility, offering courses to students throughout the industry, from powerplant operators to dispatchers to anyone else with an interest in learning about the principles and operation of power generation, transmission and interconnected system operations.



IT Service Portal celebrates first anniversary

As of Sept. 30, the Information Technology Service Portal has been up and running for one year.

In this time, there have been more than 7,000 unique self-service requests, representing a growing partnership between employees and the IT community. This also underscores the promise of timely and effective service delivery that aligns with *Strategic Roadmap 2024* and contributes to improved mission accomplishment.

Service Catalog requests have steadily increased over the fiscal year, topping 2,294 requests in June, which is more than 50% higher than the monthly average of 1,440.

WAPA leveraged the Service Portal to automate a system for employees to borrow and track IT property during the organization's maximum telework posture in response to COVID-19. From March through the end of fiscal year 2020, 462 employees borrowed more than 1,000 IT devices for their home environments, including webcams, monitors and docking stations.

The IT Service Portal provides a one-stop shop for employees to get help, improving service delivery times and promoting self-service for common IT services. The portal combines a search engine, a knowledge base and an IT Service Catalog.

Leadership Development Program launches with impressive achievements

In March, WAPA launched the Leadership Development Program to serve both current and future leaders. It was developed in response to feedback received through the Federal Employee Viewpoint Survey, which indicated interest in WAPA increasing its investment in leadership development.

Following taskforce recommendations and best business practices, the Leadership Development Program accomplished many things in fiscal year 2020, including:

- Launching a Leadership Development Program intranet site.
- Creating and publishing a WAPA-specific Competency Model and Competency Guide.
- Hiring a Leadership Development Program Manager.
- Selecting a vendor for WAPA-specific 360-degree assessments.
- Hosting a virtual Leadership Culture at WAPA course.
- Hosting open-enrollment courses on topics such as managing remote employees and The Empowerment Dynamic, which drew hundreds of participants.
- Launching a Leadership Essentials webinar series.



CPI saves, avoids \$113 million

WAPA is constantly looking for new ways to improve the organization. A big part of that is learning how to improve the individual processes and components of day-to-day activities that contribute to WAPA's greater mission. WAPA's Continuous Process Improvement program, launched in fiscal year 2014, has captured over \$113 million in saved or avoided costs to date doing just that.

The CPI program leverages Lean and Six Sigma methodologies. WAPA's two Black Belts and 22 matrixed Green Belts identify improvement opportunities, lead regional or WAPA-wide improvement projects and assist employees in "Just Do It" projects, which can improve daily processes and ultimately provide additional value to customers. The team also developed a Yellow Belt training class to embed an improvement mindset throughout WAPA's culture. Classes have been conducted in three regions, in which 55 employees have been trained.

1

Green Belt certified

3

CPI projects completed

55

Yellow Belts trained

\$600,000

Costs saved or avoided in 2020

\$113 million

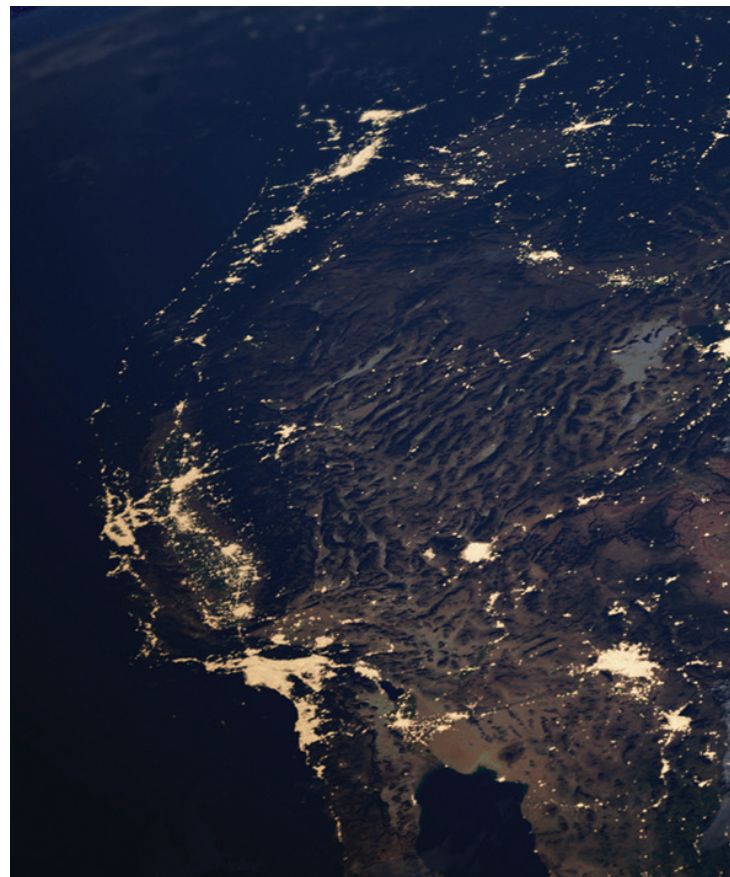
Costs saved or avoided since 2014

WAPA transitions to new RC

On Dec. 3, 2019, WAPA's Western Area Colorado-Missouri, Western Area Lower Colorado and Western Area Upper Great Plains – West balancing authorities, along with the transmission operators in their respective footprints, successfully transitioned to the Southwest Power Pool Reliability Coordinator.

The previous reliability coordinator, Peak Reliability, ceased operations the same day. The cutover of the three BAs completed the RC transition that WAPA had announced in September 2018. Sierra Nevada, a sub-balancing authority within the Balancing Authority of Northern California, began receiving reliability coordinator services from the California Independent System Operator in July 2019.

BAs and transmission operators are required by the North American Electric Reliability Corporation to have a reliability coordinator whose responsibility is to oversee transmission operations and potential areas of congestion or instability across multiple BAs or transmission operators within a geographic region.



Expanded substation accepts wind power

On Dec. 20, 2019, the Utica Junction Substation in southeast South Dakota began accepting wind power with its new 230-kilovolt bay.

Upper Great Plains crews expanded the substation to accommodate the wind farm's request for a new bay to access the regional power grid. Utica Junction Substation had been built in 2010 to serve pump loads for the original Keystone pipeline and was not configured to accept an additional 230-kV interconnection. Construction started in February 2019 by contracted construction workers who laid the foundations and conduit. UGP employees completed most of the significant work for the new bay, which required changing from a ring bus to a breaker-and-a-half configuration to ensure reliable service.

Work included constructing and installing four circuit breakers, nine disconnect switches, five instrument transformers, four control panels and associated control cables and the bus work, which added 85,000 pounds of structural steel to the facility. Crews extensively rewired the existing control panels.



WAPA rescues synchrophasor data

The closure of Peak Reliability raised the question of what would happen to its historical synchrophasor data.

WAPA, the Western Electricity Coordinating Council and the Department of Energy were concerned about preserving the terabytes of historical data for future use and research initiatives, such as the North American Energy Resilience Model initiative. WAPA employees stepped up to help.

Peak's synchrophasor data originated from many utilities. Preserving it required WAPA to establish formal agreements to maintain legal protections outlined in existing data-sharing agreements.

WAPA worked with Pacific Northwest National Laboratory and arranged for them to handle the copying of the synchrophasor data. PNNL built the infrastructure necessary to copy the tapes.

The tapes contained historic power-system event data that can be studied to better understand grid operations. If anybody wants to study those historic events, and learn from them, having access to any data that was captured at the time is crucial.

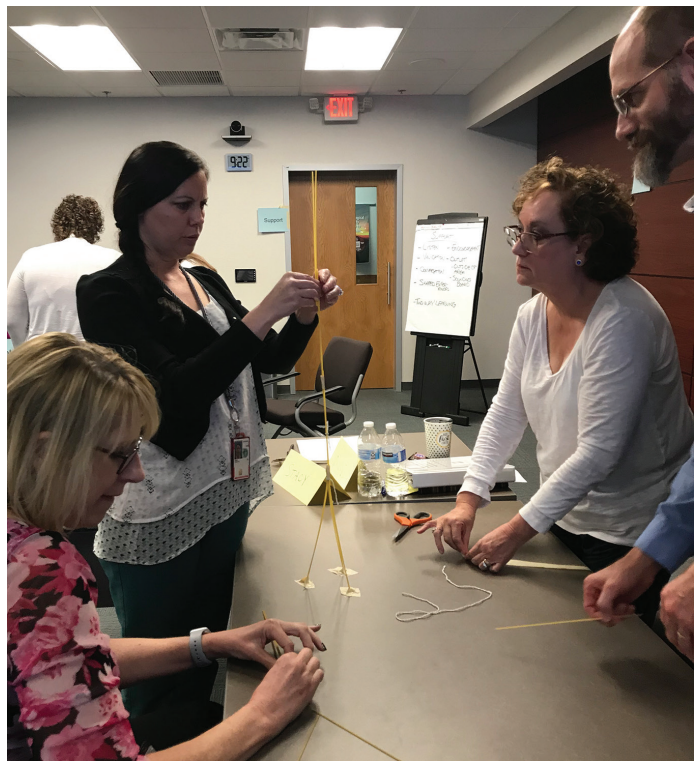
The parties involved set a deadline of Nov. 28, 2019, knowing they would have to work very hard to finish before Peak delivered the tapes to an inaccessible location. With a great deal of coordination and cooperation, the task was completed three days ahead of the deadline. No data was lost, damaged or compromised.

Future leaders start at the GOAL

The Guiding Outstanding and Accountable Leaders program graduated its first class Nov. 7.

GOAL, a mentoring program designed to support new and upcoming leaders, began in February. It was open to any WAPA employee stationed in Desert Southwest who was in their first role as a formal leader at WAPA. This included anyone with a role as a supervisor, foreman or team lead.

The program is intended to establish a working relationship between a mentor and a mentee. The mentor, an experienced and trusted leader, works with the mentee to provide guidance and knowledge. This program illustrates WAPA's core value of "Seek. Share. Partner," and serves as a resource for professional growth and development.



HIIS aids in remote SCADA support

Seeing the spread of COVID-19 in parts of the globe in February and anticipating its potential impacts to its operations, WAPA accelerated a planned solution to perform critical grid operations remotely while maintaining the necessary security and expected reliability.

WAPA authorized use of the High Impact Intermediate System WAPA-wide in May, which provided 82 Operations and Information Technology employees with enhanced capabilities to remotely support supervisory control and data acquisition, or SCADA, systems during the COVID-19 pandemic.

A second phase of the project, completed Aug. 17, allowed for further-improved security of emergency access through the HIIS.

Thinking beyond emergency responses, WAPA also developed a longer-term solution, training authorized users on a new system that gives them access to additional SCADA environments for routine work, planning and testing.

“WAPA authorized use of the High Impact Intermediate System WAPA-wide in May, which provided 82 Operations and Information Technology employees with enhanced capabilities to remotely support supervisory control and data acquisition, or SCADA, systems during the COVID-19 pandemic.”



RMI modernizes recordkeeping

In October 2019, WAPA successfully installed the new Alfresco electronic records management system, or ERMS, to manage WAPA's physical and electronic records. Its installation was a key milestone in WAPA's Records Modernization Initiative to ensure compliance with the Federal Records Act and Code of Federal Regulations. WAPA is connecting the cloud-based ERMS to WAPA's main records repositories and promoting common records practices.

In December 2019, WAPA transitioned to electronic management of permanent electronic records to the fullest extent possible as required by the Office of Management and Budget and National Archives and Records Administration.

Throughout fiscal year 2020, the RMI focused on maturing WAPA's organizationwide Records and Information Management Program. WAPA staff updated file plans, formalized the essential records program and submitted 10 new records schedules to NARA in July. These schedules will replace WAPA's existing schedules, many of which are more than 20 years old.

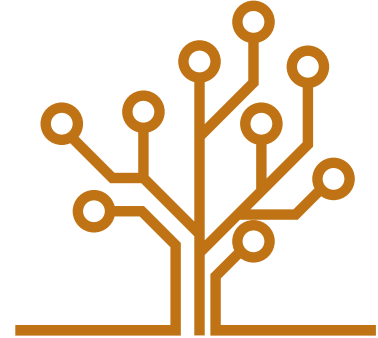
New EMMO software adds flexibility

At midnight Feb. 25, the Energy Management and Marketing Office in Montrose, Colorado, successfully cut over to new software, switching from TIGER to MCG after almost six months of parallel operations.

MCG allows EMMO specialists to tag and account for energy and generation transactions.

WAPA switched to MCG to align with Information Technology's goal to use off-the-shelf platforms instead of in-house applications and help position the EMMO for potential market constructs in the future.

An unexpected benefit was that MCG possessed enough flexibility and capability to allow real-time marketers to work from home when the COVID-19 pandemic triggered a state stay-at-home order less than one month after implementation.



Fifth year for AM enhances data

In its fifth year as a formal program, Asset Management's program portfolio grew to include new asset classes, including load tap changers, transformer bushings, cranes and power circuit breakers under 100 kilovolts.

With the addition of each new asset, regional maintenance organizations gain data to make more effective budgeting, maintenance and replacement decisions.

Data can be used to measure an asset's health and the risk to the organization should that asset fail. Factors such as age, maintenance history, function, design and operating capacity, as well as consequence data, are used to determine an asset's risk score. Consequence data measures the importance of an asset to the system based on operations, public relations, safety, environmental factors and overall costs associated with asset failure.

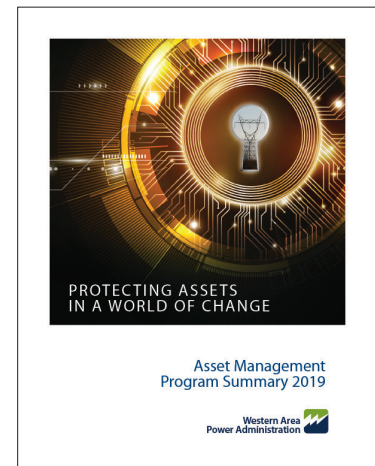
In its previous iteration, Asset Management collected consequence data in one spreadsheet with minimal version control and workflow tracking. In fiscal year 2020, Asset Management refined the consequence scoring process and moved it to a stable platform.

With a consistent scoring system in place, Asset Management is now exploring more advanced reporting tools that are designed to help end users visualize and understand the data better in real time.

The WAPA Power System Change Control and Facility Identification Code Renovation projects both completed their initial phases in fiscal year 2020.

The WPSCC produced an overarching data dictionary to serve as the foundation for establishing a single, authoritative source and consistent governance processes to manage transmission-system changes and related data.

The FID Code Renovation proposed a solution for developing a more consistent process for managing FID codes, widely used throughout WAPA to identify locations for operational and business purposes.





Auditing compliance virtually is a WAPA win

The spread of COVID-19 meant that a mock audit for which Desert Southwest had prepared for six months was suddenly not as feasible. The mock audit would have to be cancelled, postponed or, as DSW staff ultimately decided, virtualized.

The audit's core goals and processes remained the same. Moving dozens of people to a virtual environment for an audit involved assuring everyone that the training they had received in the previous months would be just as effective.

The virtual mock audit began March 9 and continued for a total of five days.

To ensure that WAPA fulfills the obligations of Critical Infrastructure Protection reliability standards, its regions are audited on a regular cycle by third-party auditors and regulatory agencies. To prepare for these audits, reliability compliance staff works steadily throughout the year and conducts mock audits to help WAPA employees stay in practice for the triennial audits.

ICG bridges communication gaps

In January, WAPA launched the Integrated Communications Group. Twelve diverse employees from various departments and duty locations were competitively selected, with each of them dedicated to evolving WAPA's communications effectiveness.

The group started by considering findings from WAPA's 2019 Internal Communications Audit and subsequent focus groups, along with WAPA's Culture Assessment of 2016. Both revealed that employees desired to influence and participate in the organizationwide communication effort.

The members of the ICG then began working to fill communication gaps for mission-critical communication, particularly new challenges created by employees working from home and mission-critical employees required to stay on the job.



Phase One of EMMO job task analysis complete

The Upper Great Plains Energy Management and Marketing Office team completed the first phase of an in-depth job task analysis project, identifying and creating job aids and on-the-job training guides for more than 100 tasks. The project took six months to complete.

In line with *Strategic Roadmap 2024's* Critical Pathway of Business, Technology and Organizational Excellence, the UGP EMMO workgroup established a standard format for documenting the group's collective knowledge, using an electronic database to share job knowledge.

The on-the-job training guides create a knowledge base that is available 24/7, increases productivity and reduces uncertainties, providing a structured approach for new-hire onboarding. Having all guides in one easily navigable location accelerates employee training efforts and assists in covering for employees on leave. They will be particularly helpful in the case of emergency.

The software package is designed for expansion beyond the guides to develop employee training programs, succession planning and performance evaluations.

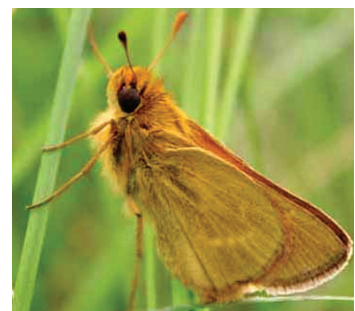
“ The on-the-job training guides create a knowledge base that is available 24/7, increases productivity and reduces uncertainties, providing a structured approach for new-hire onboarding. ”

UGP builds biological risk assessment

Upper Great Plains is home to many federally listed threatened and endangered species. Various laws, rules and regulations, including the Endangered Species Act, require WAPA to avoid, reduce and disclose impacts to biologically sensitive areas for those species. This fiscal year, UGP began creating a series of reference maps to simplify the approach to assessing biological risk.

The maps identify high-risk areas based on actual animal location data and with high-quality habitat models. Currently, high-risk areas have been defined for the piping plover, Topeka shiner and Dakota skipper species. This synthesis of best-available information shows where specific best management practices need be applied. The approach will enhance real-time decision making for project planning and can inform long-term strategies.

This data provides UGP with a tool to significantly improve coordination with customers, as well as Engineering and Maintenance employees. The assessment can be used as a template for effective environmental compliance, and its emphasis on high-risk areas reduces biological review time.

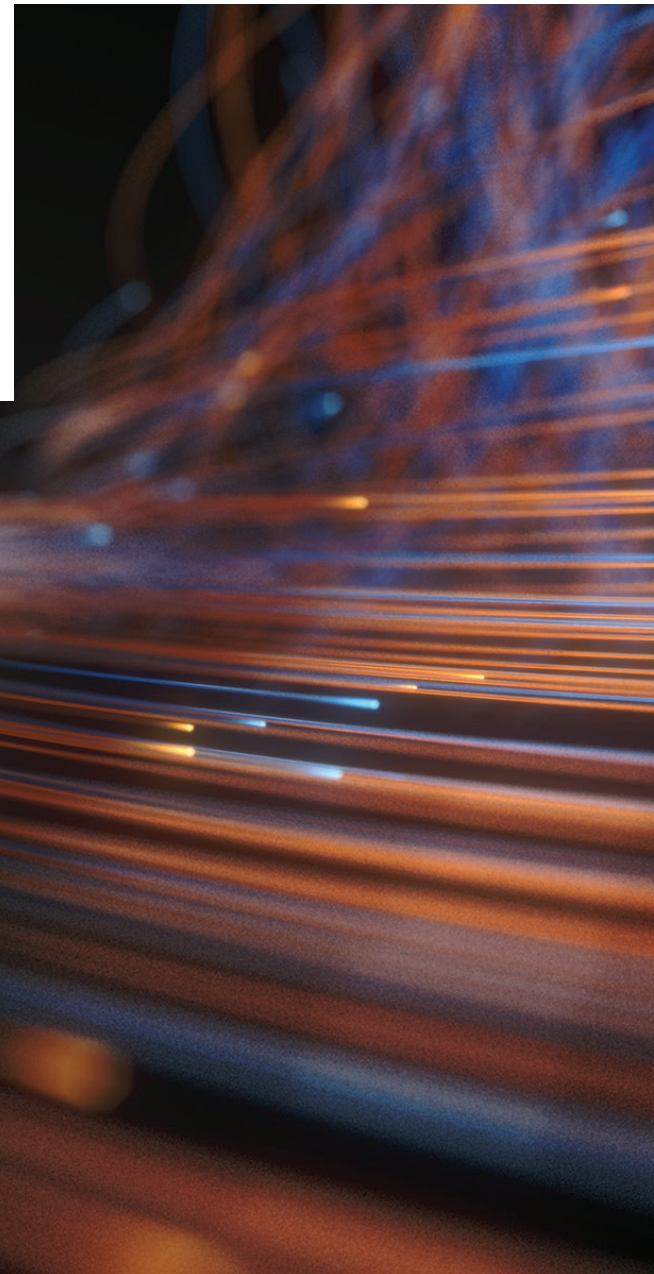


WAPA publishes fiber optics feasibility assessment

In July 2020, WAPA published a report exploring the feasibility of leasing currently unlit fiber optic strands, also known as dark fiber, to customers or third parties. Southwestern Power Administration and the Department of Energy's Office of Electricity also participated. The report supported the American Broadband Initiative to examine risks and opportunities of providing broadband internet services using WAPA's and SWPA's existing transmission and fiber optics infrastructure.

WAPA then studied potential options and risks for moving forward under its current authorities for three WAPA customers in Colorado and California that had expressed interest in fiber optic partnerships, while ensuring the beneficiary pays for any related costs.

WAPA sought input from its customers during the development of the report. Some of the potential benefits they identified included augmenting rural customer revenues, advancing WAPA's network capabilities while improving the resilience of WAPA's transmission system, and strengthening communication systems for rural emergency services and healthcare providers.



Twelve talents recognized at CLDP graduation

In January, graduates of the Craft Leadership Development Program were honored at the 2020 All-Leadership Summit in Denver, Colorado. Their two-year journey began in 2018. Participants continued to perform their primary job responsibilities while enrolled in the program.

These future leaders developed traits and skillsets needed for the next step in their careers while broadening their views of the organization and industry. Their new experiences assisted them in reaching their development goals, which were outlined to serve as “blueprints” following graduation.

The CLDP is open to all permanent, non-supervisory, journeyman-level craft employees.



CAO has impressive first year

WAPA stood up the Office of the Chief Administrative Officer in 2019 to provide leadership and direction in support of the organization’s mission, business functions and programs. The CAO manages Procurement, Human Resources, Economic Impact and Diversity, the Transmission Infrastructure Program, Natural Resources, Facilities and Fleet, Records Management and Tribal Intergovernmental Relations.

In its first year, the OCAO met many key goals, including:

- Developing a dashboard containing hiring data to inform decisions.
- Completing the WAPA-wide Records Modernization Initiative and procuring a cloud-based software solution.
- Partnering with the Forest Service to gain rights-of-way access to clear vegetation around transmission lines in areas of Colorado, Nebraska and Utah for the first time in 10 years.
- Launching a Category Management oversight board, a critical first step in a WAPA-wide initiative to streamline procurement practices.
- Renewing the memorandum of understanding between the Transmission Infrastructure Program and the Department of the Treasury.



PEOPLE AND DOLLARS

How WAPA effectively applies and manages its resources is central to its success in delivering on its mission and operating safely, securely and reliably. Below is an illustration of where WAPA's people and dollars were deployed in fiscal year 2020.

Just over half of WAPA's employees supported the reliability of the electric grid, and the largest percentage of funds was attributed to the organization's marketing function, which includes purchase power and wheeling.

These figures do not include resources assigned to and paid for by the Transmission Infrastructure Program.

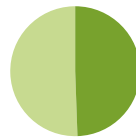
RELIABILITY

**764
people**

and

**35
percent**

of dollars invested
in maintenance
and related areas.



DELIVERY

**199
people**

and

**6
percent**

of dollars dedicated
to power operations.



MARKETING

including purchase power and wheeling

**164
people**

and

**47
percent**

of dollars committed
to power marketing
areas.



COST-BASED

and related services

**339
people**

and

**11
percent**

of dollars applied to
support the mission.



CUSTOMER IRP SUMMARY

WAPA's Integrated Resource Planning requirements, outlined in Section 114 of the Energy Policy Act of 1992, give customers several options to comply with the law's energy-planning clauses. Customers must submit annual progress reports and new integrated resource plans every five years, either individually or cooperatively. Customers who meet specific criteria are also allowed to choose from three additional IRP reporting options—small customer plans, minimum investment reports or energy efficiency and renewable energy reports—instead of a full IRP.

In fiscal year 2020, WAPA received 105 IRPs from individual customers, 225 plans from cooperatives, 105 minimum investment reports, 132 small customer plans and four energy efficiency/renewable energy reports.

Top 5 demand-side management activities:

- Lighting
- Load management
- Air conditioning upgrades
- Rebates
- Audits and envelopes

Top 5 renewable energy resource choices:

- Solar
- Wind
- Geothermal
- Small hydro
- Biogas/mass

Customer IRP accomplishments¹

Item	CRSP MC ²	DSW	RM	SN	UGP	Total
DSM ³ savings (kW)	23,098	194,428	406,433	52,218	456,171	1,132,348
DSM savings (kWh)	82,075,206	858,211,341	925,305,053	286,734,901	320,072,727	2,472,399,228
DSM Expenditures (\$)	20,928,752	96,309,688	26,655,359	35,408,977	49,568,147	228,870,923
DSM Deviations ⁴ (\$)	448,570	-6,326,203	11,685,926	6,133,936	-1,312,627	10,629,602
Renewables (kW)	663,919	1,636,787	1,632,611	2,175,175	1,756,412	7,864,904
Renewables (kWh)	1,996,971,662	3,636,207,211	6,346,058,998	10,280,811,292	7,330,963,320	29,591,012,483
Renewable Expenditures (\$)	56,817,740	101,361,216	202,524,257	191,470,896	189,772,385	741,946,494
Renewable program types	Solar, wind, geothermal, hydro, biogas/mass	Solar, geothermal, hydro, wind, biomass/gas, green tags	Wind, solar, hydro, biogas/mass, green tags	Solar, hydro, biomass/gas, wind, geothermal, green tags	Solar, small hydro, biogas/mass, wind, geothermal, green tags	Solar, small hydro, geothermal, wind, biogas/mass, green tags
Top 5 most frequent DSM activities	Load management, rebates, lighting, insulation, HVAC	Lighting, rebates, AC, audits, load management	Lighting, load management, AC, audits, rebates	Commercial lighting, commercial AC, rebates, residential AC/lighting, residential ventilation/audits	Commercial lighting, AC, rebates, commercial refrigeration, load management	Lighting, load management, AC, rebates, audits
Top 5 renewable energy activities	Solar, wind, geothermal, hydro, biogas/mass	Solar, geothermal, small hydro, wind, biomass/gas	Wind, solar, small hydro, biogas/mass, green tags	Solar, small hydro, wind, geothermal, biogas/mass	Wind, solar, green tags, biogas/mass ⁵	Solar, wind, geothermal, small hydro, biogas/mass
Top 3 customer-reported trends	Not reported	Power purchase agreements, hydro, water efficiency	Power purchase agreements, electrification, fuel switching	Not reported	Solar, hydro, biogas	Power purchase agreements, electrification, renewables
# of IRPs from individual customers	3	53	24	12	13	105
# of IRPs from cooperatives	3 (comprised of 20 entries in total)	9 (comprised of 58 entries in total)	7	0	140	225
# of MIRs	0	12	5	3	85	105
# of SCPs	0	31	33	31	37	132
# of EE/RE Reports	0	0	4	0	0	4

¹ The FY 2020 IRP filings of some customers are not represented in these numbers due to filing dates falling after the creation of this report.

² All CRSP numbers represent FY 2019 IRP reports.

³ DSM refers to demand-side management activities the utility conducts to change customer energy use.

⁴ Deviations refer to differences from the customer's IRP.

⁵ Only four activities were reported.

SENIOR EXECUTIVE TEAM

Administrator and Chief Executive Officer	MARK A. GABRIEL
Executive Vice President and Chief Operating Officer	KEVIN HOWARD
Senior Vice President and Chief Financial Officer	MICHAEL PETERSON
Senior Vice President and Chief Information Officer	MICHAEL MONTOYA
Senior Vice President and Chief Administrative Officer (acting)	DIONNE THOMPSON
Senior Vice President and Assistant Administrator for Corporate Liaison (acting)	KATHY TYER
Senior Vice President and General Counsel	JOHN D. BREMER
Senior Vice President and Colorado River Storage Project Management Center Manager	TIM VIGIL
Senior Vice President and Desert Southwest Regional Manager	TRACEY LeBEAU
Senior Vice President and Rocky Mountain Regional Manager	DAWN ROTH LINDELL
Senior Vice President and Sierra Nevada Regional Manager	SONJA ANDERSON
Senior Vice President and Upper Great Plains Regional Manager (acting)	LLOYD LINKE
EX-OFFICIO MEMBERS	
Power Marketing Advisor	RODNEY BAILEY
Chief of Staff	MELISSA ARDIS
Chief Strategy Officer	JENNIFER RODGERS
Chief Public Affairs Officer	TERESA WAUGH
Power Marketing Administration Human Resources Shared Service Center Director	CARL DURRETT
Senior Human Resources Business Partner	NIKKI KING

Note: This information reflects the Senior Executive Team as of Sept. 30.

CONTACT WAPA

Call or write your local WAPA office or Public Affairs in Lakewood, Colorado, to share your comments or to find out more about WAPA.

**WESTERN AREA POWER
ADMINISTRATION**

P.O. Box 281213
Lakewood, CO 80228-8213
720.962.7050

WASHINGTON LIAISON OFFICE

Department of Energy
Room 8G-037, Forrestal Building
1000 Independence Avenue SW
Washington, DC 20585-0001
202.586.5581

ELECTRIC POWER TRAINING CENTER

P.O. Box 281213
Lakewood, CO 80401-3301
800.867.2617

**COLORADO RIVER STORAGE PROJECT
MANAGEMENT CENTER**

299 South Main Street, Suite 200
Salt Lake City, UT 84111-1580
801.524.5493

DESERT SOUTHWEST REGIONAL OFFICE

P.O. Box 6457
Phoenix, AZ 85005-6457
602.605.2525

ROCKY MOUNTAIN REGIONAL OFFICE

P.O. Box 3700
Loveland, CO 80539-3003
970.461.7200

SIERRA NEVADA REGIONAL OFFICE

114 Parkshore Drive
Folsom, CA 95630-4710
916.353.4416

UPPER GREAT PLAINS REGIONAL OFFICE

P.O. Box 35800
Billings, MT 59107-5800
406.255.2800

www.wapa.gov

publicaffairs@wapa.gov



Western Area Power Administration

WESTERN AREA POWER ADMINISTRATION

P.O. Box 281213

Lakewood, CO 80228-8213

www.wapa.gov



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